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# SHARP: Bringing HAIs into Focus

Surveillance of Healthcare-Associated and Resistant Pathogens Unit, Michigan Department of Community Health

[www.michigan.gov/hai](http://www.michigan.gov/hai)

## Welcome the newest "SHARPie"

Bryan O. Buckley is the new Prevention Initiative Data Analyst for the MDCH SHARP Unit providing support to both our MRSA/CDI and CRE Prevention Initiatives. Bryan comes originally to us from the state of Maryland. He received his BS in Microbiology with a concentration in Medical Microbiology & Immunology from Michigan State University (MSU) and remained at MSU to pursue his MPH. While completing his MPH, Bryan worked as an Intern at a hospital in the Infection Prevention department; and served as President of the MSU Public Health Student Society. Bryan spent his summer working on his practicum overseas in Antigua and Liberia, with each country's Ministry of Health, working to recognize how public health operates in environments with restrictive financial and human resources. Please welcome Bryan!

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## In this issue

Promoting IP Week **P.1**

Welcome Bryan Buckley

NHSN Rates vs. SIRs **P.2**

Partner Updates

MRSA/CDI Update **P.3**

In the Literature

CRE Update **P.4**



## Promoting Infection Prevention Week Oct. 14-20

The national Association of Practitioners in Infection Control and Epidemiology (APIC) has designated the week of October 14 - 20, 2012 as International Infection Prevention Week (IIPW). Since 1986, when President Ronald Reagan first proclaimed the third week of October as National Infection Control Week, APIC has spearheaded the annual effort to highlight the infection prevention profession and its work in educating healthcare professionals and administrators, legislators, and consumers about the importance of reducing infections.

With the ever increasing emergence of pathogens that are resistant to antibiotics, the importance of infection control in reducing infections has never been more critical than now. It is imperative that we educate the community that infection prevention is everyone's business, not just the medical community's responsibility. With this in mind, the SHARP Unit is sponsoring a one-day manned exhibit on October 15th during Infection Prevention Week in the lobby of the Capitol View Building in downtown Lansing. By having a display, passing out educational materials on correct handwashing procedures along with an antiseptic spray, the SHARP Unit hopes to make the general public and others aware of the importance of infection control and what they can do in their own lives to prevent the spread of infections to others. There will also be literature distributed to the public and others to demonstrate how they can help control the emergence of new antibiotic resistant microorganisms.

To learn more about International Infection Prevention Week, and to get resources and ideas for activities in your facility, visit <http://iipw.site.apic.org/>.

—Judy Weber, [WeberJ4@michigan.gov](mailto:WeberJ4@michigan.gov)

*Michigan Department  
of Community Health*



Rick Snyder, Governor  
James K. Haveman, Director

## Partner Update

### Sharing Data with MHA and VON

MDCH SHARP, with hospital permission, may release hospital-specific NHSN HAI data to the Michigan Health and Hospital Association (MHA) Keystone Center and/or the Michigan Vermont Oxford Network (VON) Neonatal Intensive Care Unit (NICU) Collaborative, thus eliminating the need for duplicate data entry (e.g. Care Counts) by hospitals. In order for this to occur, hospitals must share NHSN data with SHARP and sign a Third Party Data Use Addendum giving SHARP permission to release HAI data to MHA and/or VON.

### HAI Crosswalk

In demonstration of SHARP's commitment to coordinated statewide HAI activities, SHARP has collaborated with MPRO (Michigan's Quality Improvement Organization) and the Michigan Health and Hospital Association (MHA) to develop an HAI Prevention Crosswalk that describes the various HAI surveillance and/or prevention initiative activities undertaken by each organization. Find the Crosswalk on our website at [www.michigan.gov/hai](http://www.michigan.gov/hai).

—Judy Weber,

[WeberJ4@michigan.gov](mailto:WeberJ4@michigan.gov)

## NHSN Infection Rates vs. SIRs

Traditionally, surveillance for HAIs has been measured by infection rates, the total number of infections (numerator) over the population at risk (denominator). Recently, however, NHSN (<http://www.cdc.gov/nhsn/datastat.html>) and agencies that publically report HAI data ([www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov)) have been publishing Standardized Infection Ratios (SIR) as a replacement for infection rates. Here we will discuss the differences in these two metrics with an example from the SHARP NHSN data.

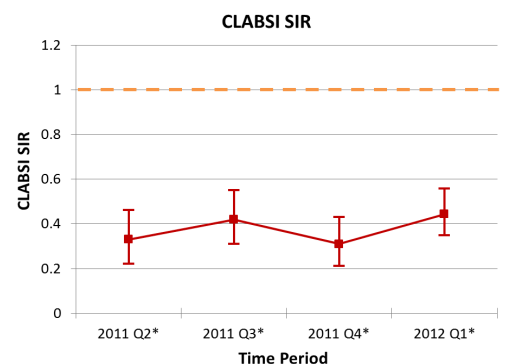
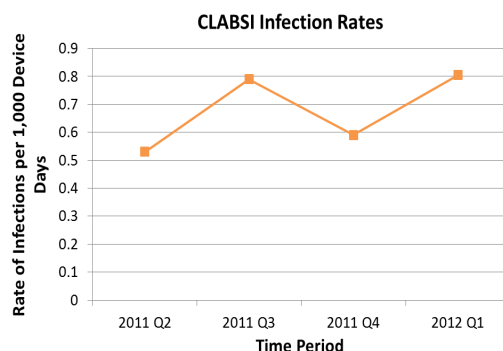
**SIR =  $\frac{\text{Observed (O) HAIs}}{\text{Expected (E) HAIs}}$**

The SIR was first introduced by NHSN in 2010 to better risk-adjust for facility- and patient-level factors that influence HAI rates. The details of this can be found [here](#). The SIR is a ratio of the observed number of infections divided by the expected number of infections (see table below for SIR interpretation). The observed infections are the number of HAIs in a hospital or hospital location, while the expected number of infections are calculated by a NHSN algorithm based on historical HAI data and population risk factors. An advantage to using the SIR is that it adjusts for factors that might make an HAI rate higher for one patient population versus another, resulting in a more 'fair' comparison between one unit and another or one hospital and another.

When an HAI rate increases, this can be alarming to an infection preventionist. They may wonder if the increase is be-

cause of poor infection control or if they are seeing a more sickly group of patients who are more prone to infection. Both scenarios could result in a higher rate. Luckily, the SIR can adjust for these patient differences so you can determine if the increase in infections is a result of a change in patient risk.

SIR value	SIR Interpretation
<1	Fewer observed infections than expected
1	Same number of infections as expected
>1	More observed infections than expected



A good illustration of this can be seen in the CLABSI surveillance data from the latest SHARP NHSN Quarterly Report. From Q4 2011 to Q1 2012 the CLABSI rate went from .59 to .81 infections per 1,000 device days, which was a statistically significant increase. Meanwhile, the CLABSI SIR increased from .31 in Q4 2011 to .44 in Q1 2012, which was not a statistically significant increase. It's worth noting that the CLABSI SIR is well below zero, meaning there were far fewer CLABSIs observed than expected. The data illustrate how a significant change in the infection rate may be, in part, a result of an increase in expected infections due to a more susceptible patient population (as opposed to an increase in infections as a result of poor infection control practices). Because SIRs are risk-adjusted they hold an inherent advantage over HAI rates and therefore have become the standard HAI reporting metric. It is important for IPs to understand the intricacies of SIR reporting and how SIR surveillance compliments HAI rates.

—Allison (Gibson) Murad, [MuradA@michigan.gov](mailto:MuradA@michigan.gov)

## MRSA/CDI Initiative Update

### Site Visits

All site visits for the first baseline period have been completed. Site visits were strategically planned to coordinate with the expected stages of evaluation of the action planning within the regions. All regions are in the formative stage of their action planning and have done much work to arrange meetings and strategize about how to get their plans initiated. Future visits will be arranged to assess facility progress.

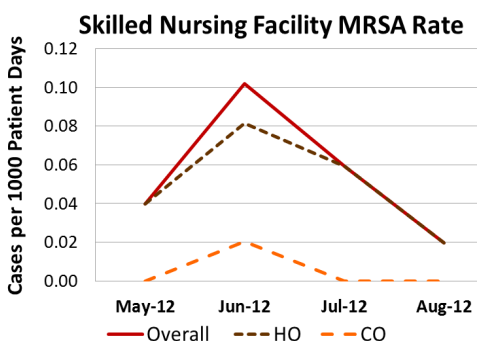
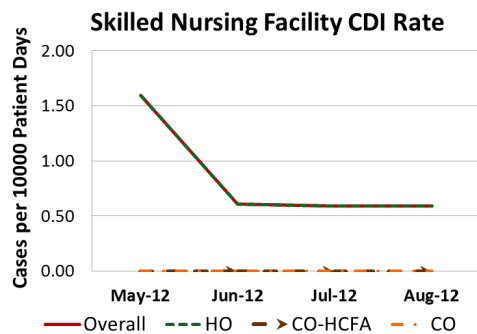
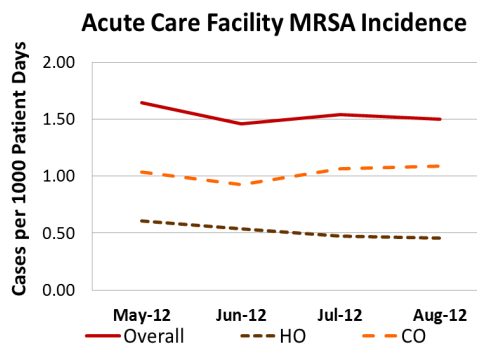
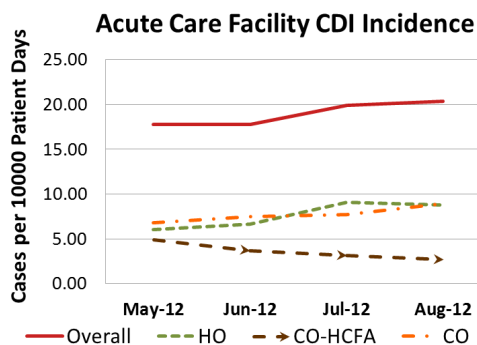
### Collaborative Retreat

The MRSA/CDI Collaborative Sub-committee convened a meeting on September 14, 2012 to review the results of submitted CDC MRSA, CDI, and long-term care facility assessment survey tools. We collected over 100 submitted responses from acute and skilled nursing facilities.

The Collaborative members proposed various educational opportunities to address facilities' needs. The final decision is to develop a needs assessment tool that hospitals and skilled nursing facilities (SNFs) can use to assist in targeting specific areas where more education is needed. In addition, the Collaborative requested that 'Train-the-Trainer' educational CD's be developed that would have patient and family educational offerings that local health departments and SNFs could use as a resource in their training activities. Collaborative members representing public health, acute care and long term care volunteered to assist with this activity.

### Data Collection and Reports

Hospitals and SNFs have been submitting MRSA and CDI infections (and denominators) to MDCH on a monthly basis for the baseline period of data collection (May-Oct 2012). The following are the aggregate MRSA and CDI monthly incidence rates for hospitals and SNFs participating in the initiative.



**KEY:** HO (Healthcare-onset) specimen ID >3 days after admission, CO (Community-onset) specimen ID ≤3 days after admission, CO-HCFA (Community-onset, Healthcare-associated) specimen ID <3 days after admission and previous positive within 4 weeks

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—Bryan Buckley, [BuckleyB2@michigan.gov](mailto:BuckleyB2@michigan.gov)

## In the Literature

The May 2012 Issue of *Clinical Infectious Disease* recently published an interesting article by Viau et al. describing the 'silent' dissemination of *Klebsiella pneumoniae* carbapenemase (KPC) in a children's long-term care facility. A previous study had collected stool samples from the residents in 2004 to assess changes in their gut microbiota as a result of being admitted to the facility. Viau and colleagues were able to obtain the saved specimens and test them for antimicrobial-resistant bacteria. Recovered bacteria were tested by phenotypic and molecular methods.

12/26 residents tested positive for KPC. DNA sequencing determined that the KPC isolates were >98% similar, suggesting a common source. A case-control analysis showed no statistically significant differences between the KPC carriers and the non-carriers.

The article shows how KPC transmission can go undetected by traditional testing methods. The results demonstrate that KPC infection may only be the 'tip of the iceberg' and that identifying carriers of KPC is crucial to interrupting its spread. It is also important to point out that KPC is not only an issue for acutely ill adult patients, but are present in long-term care facilities and pediatric populations.

—Joseph Coyle,

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## Save the Date

10/11— NHSN 7.0 Training Webinar

10/11-10/12— MSIPC Conference, Lansing, MI

10/14-10/20— Infection Prevention Week

10/24-10/26— MSIPC Fundamentals, Dewitt, MI

10/17-10/21— ID Week, San Diego, CA

10/31— MPRO MDRO/CDI LabID Event Analysis Webinar

11/2— CRE Educational Conference, Plymouth, MI (by invitation only)

## Helpful Links

[www.michigan.gov/hai](http://www.michigan.gov/hai)

[www.mhakeystonecenter.org](http://www.mhakeystonecenter.org)

[www.mpro.org](http://www.mpro.org)

[www.mi-marr.org](http://www.mi-marr.org)

[www.msipc.org](http://www.msipc.org)

[www.apic.org](http://www.apic.org)

[www.hhs.gov/ash/initiatives/hai/](http://www.hhs.gov/ash/initiatives/hai/)

[www.hospitalcompare.hhs.gov](http://www.hospitalcompare.hhs.gov)

[www.cdc.gov/nhsn](http://www.cdc.gov/nhsn)

[www.cdc.gov/HAI/prevent/prevention.html](http://www.cdc.gov/HAI/prevent/prevention.html)

[www.cdc.gov/HAI/organisms/cre](http://www.cdc.gov/HAI/organisms/cre)

[www.cdc.gov/HAI/organisms/cdiff/Cdiff\\_infect.html](http://www.cdc.gov/HAI/organisms/cdiff/Cdiff_infect.html)

# Carbapenem-Resistant *Enterobacteriaceae* Initiative Update

## Facility Recruitment

As of September 14<sup>th</sup>, MDCH was able to enroll 20 facilities to participate in the CRE Surveillance and Prevention Initiative. Of the 20 facilities, 4 are long term acute or long term care facilities and the remaining are acute care facilities. These facilities are geographically spread throughout the state, providing good surveillance coverage across the state.

## Data Collection

Baseline data collection started September 1st and will continue through February 28th, 2013. MDCH held 2 data calls during which participants were introduced the initiative, surveillance definitions, reporting specifics, data collection forms and other mechanics of the initiative.

## CRE Educational Conference

All facilities in the initiative are invited to attend the CRE Surveillance and Prevention Initiative Educational Conference. World-renowned experts on CRE testing surveillance, prevention and public health interventions will be presenting at the conference. The conference will serve as the educational kick-off of the CRE Surveillance and Prevention Initiative. The conference, which will be held November 2nd in Plymouth, is invitation only.



## CRE Toolkit

The CDC has recently released a new CRE prevention and control toolkit designed to help facilities and health departments prevent CRE infections. The toolkit can be found at: [www.cdc.gov/HAI/organisms/cre](http://www.cdc.gov/HAI/organisms/cre).

—Brenda Brennan, [BrennanB@michigan.gov](mailto:BrennanB@michigan.gov)



4

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